

Performance Report on Surface Streets in the Seattle Central Business District

Volume 5: Fourth Update - Post Tunnel Closure

January 16, 2007



As required by the Agreement between King County, City of Seattle and Sound Transit, as revised June 24, 2002, for the Downtown Seattle Transit Tunnel and Related Facilities.

Prepared by the Monitor and Maintain Committee, with representation from the following agencies:



Table of Contents

REPORT PURPOSE	1
<u>EXECUTIVE SUMMARY ON POST TUNNEL CLOSURE CONDITIONS THROUGH DECEMBER 2006</u>	<u>3</u>
MEASURE 1: TRANSIT TRAVEL TIME	6
MONITORING OBJECTIVES	6
METHODOLOGY	6
TRANSIT TRAVEL TIME COMPARISON	8
MEASURE 3: TRANSIT RIDERSHIP AND BUS VOLUMES	13
MONITORING OBJECTIVES	13
METHODOLOGY	13
BUS VOLUMES	13
TRANSIT RIDERSHIP VOLUMES	16
MEASURE 5: SEATTLE CENTRAL BUSINESS DISTRICT (CBD) CUSTOMER SURVEYS	18
MONITORING OBJECTIVES	18
BACKGROUND	18
RESULTS FROM QUICK FEEDBACK INTERCEPT SURVEYS	18
RESULTS FROM FORMAL SURVEYS	19
CONCLUSIONS	30
MEASURE 6: TRANSPORTATION DEMAND MANAGEMENT PROGRAM	31
GOALS AND OBJECTIVES	31
DATA COLLECTION	31
SUMMARY	31

Table of Figures

Figure 1.	Performance Report Release Dates.....	2
Figure 2.	Transit Travel Time Summary Analysis Corridors and Detection Point Locations.....	7
Figure 3.	Transit Corridor Travel Time Comparisons Before and After Tunnel Closure	9
Figure 4A.	First Avenue Transit Travel Time and Variation	10
Figure 4B.	Second Avenue Transit Travel Time and Variation	10
Figure 4C.	Third Avenue Transit Travel Time and Variation	11
Figure 4D.	Fourth Avenue Transit Travel Time and Variation.....	11
Figure 4E.	Virginia, Olive Way and Howell Transit Travel Time and Variation	12
Figure 4F.	Stewart Street Transit Travel Time and Variation	12
Figure 5A.	PM Peak Hour Transit Volumes - Projected in September 2005 Baseline Report.....	14
Figure 5B.	Actual PM Peak Hour Transit Volumes as of September 2006 Service Change	15
Figure 6.	Passenger Loads at University Street, before and after Tunnel Closure	16
Figure 7.	Loads over Seating Capacity at University Street, before and after Tunnel Closure	17
Figure 8.	Percent of Trips Leaving CBD Averaging Standing Loads, before and after Tunnel Closure.	17
Figure 9.	Travel to Downtown Seattle Compared to Last Year.....	21
Figure 10.	Overall Impression of Downtown Seattle	29
Figure 11.	Job Performance Rating for Interagency Task Force	29
Figure 12.	Number of RSO Online Registrants in 2006.....	33
Figure 13.	Number of HFG Individuals Sign-Up	34

Index of Tables

Table 1.	2006 Telephone Survey Sample Disposition	20
Table 2.	Average Travel Time Through Downtown Seattle (Minutes).....	22
Table 3.	Satisfaction with Downtown Bus Service Elements - Bus Cluster respondents who ride the bus to downtown Seattle	23
Table 4.	Satisfaction with Downtown Bus Service Elements - Garage/Lot respondents who ride the bus to downtown Seattle	24
Table 5.	Satisfaction with Downtown Bus Service Elements - Parking Meter Cluster respondents who ride the bus to downtown Seattle.....	25
Table 6.	Satisfaction with Car Travel through Downtown - Bus Cluster respondents who sometimes go downtown by car/carpool.....	26
Table 7.	Satisfaction with Car Travel through Downtown - Garage/Lot respondents who go to downtown Seattle by car/carpool.....	27
Table 8.	Satisfaction with Car Travel through Downtown by Trip Purpose.....	28
Table 9.	Reporting Period Data (June - November 2006)	32

Report Purpose

This report, and subsequent updates, are intended to provide the documentation necessary to satisfy the requirements of Section 10.3 of the “Agreement Regarding the Design, Construction and Operation of the Downtown Seattle Transit Tunnel and Related Facilities”, as executed by the City of Seattle, King County and Sound Transit.

Excerpts from Section 10.3 of this Agreement read as follows:

“It is the Parties’ intent that the Downtown Seattle Traffic and Street Improvements will be sufficient to maintain bus service performance on surface streets in downtown Seattle, during the closure period and after the tunnel is re-opened at performance levels similar to those existing prior to the Closure Period. The Parties hereby establish a Monitor and Maintain Committee (M&M Committee) to be comprised of the designated contacts set forth in Section 20.0. The M&M Committee may be expanded to include participation by other public agencies at the discretion of the Parties. The M&M Committee shall conduct baseline studies of bus travel time and passenger convenience, security, safety and comfort during a measurement period prior to the Closure Period (Baseline Measurement Period.)”

“During the Closure Period and for one year after the Tunnel is reopened, the M&M Committee shall continue to monitor downtown Seattle transportation system performance and make recommendations to the Parties to take actions to maintain said system performance. In performing its functions, the Committee shall be directed to (a) consult with and seek input from suburban stakeholders and (b) report quarterly to the City Council’s Transportation Committee regarding the performance of the downtown transportation system and regarding the Committee’s consultation with various stakeholders.”

The M&M Committee issued its first performance report in September, 2005 just prior to tunnel closure. Volume 1 of the report documented pre-tunnel closure conditions for six specific performance measures. Data for this initial baseline report was collected during the spring and summer of 2005. The six performance measures that are being tracked are as follows:

- Transit travel time
- General purpose traffic operations
- Transit ridership and bus volumes
- Pedestrian activity at bus zones
- Seattle Central Business District (CBD) Customer Surveys
- Transportation Demand Management (TDM) mitigation programs

Each of these six performance studies has been funded as a project within the overall Tunnel Agreement.

Volume 2 of the report was issued January, 2006. It provided the initial assessment of how the tunnel closure plan performed overall, and provided a detailed summary of the contingency planning effort that took place in the first 90 days following tunnel closure. The data sets used for Volume 2 were collected in the fall of 2005, following tunnel closure and extended up to the beginning of the Thanksgiving holidays. This allowed for a better comparison of before and after tunnel closure conditions in the Seattle central business district for non-holiday times.

Volume 3 of this report – issued March 2006 - provided updates on a subset of the six performance measures. Specifically, Volume 3 provided updated information on Measures 1, 3 and 4 and summarized the effect of a set of measures implemented after the release of Volume 2 to address issues identified after tunnel closure. These measures are: transit travel time; transit ridership and bus volumes; and pedestrian activity at bus zones. For Volume 3, transit travel time and bus volumes were derived from the first two weeks in February following the spring 2006 service change. Transit ridership figures were

derived from the fall 2005 service change that ended on February 11, 2006. Pedestrian activity at bus stops was derived from a survey taken in late February/early March.

The Volume 4 report was issued in August 2006 and provided updated information on five of the six performance measures. Data was available for all measures except data related to pedestrian activity at bus zones. Transit travel times for this report were derived from the first seven weeks of the summer 2006 service change. Transit ridership data was taken from the spring 2006 service change. Most of the post-tunnel closure traffic data for this report was collected in May, 2006.

This Volume 5 report contains updates on four of the six performance measures. These include the following: transit travel time, transit ridership and bus volumes, surveys of Seattle central business district customers, and TDM mitigation programs.

The projected schedule for the release of the balance of the report updates has been updated, as shown in Figure 1. With the release of Volume 4, there are now only two volumes of the report yet to be released.

Figure 1. Performance Report Release Dates

	Performance Report Release Dates						
Performance Measure Updates	Complete	Complete	Complete	Complete	Complete	June 07	Jan 08
	Sept 05	Jan 06	March 06	Aug 06	Jan 07		
	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5		
Transit Travel Time	⊙	⊙	⊙	⊙	⊙	⊙	⊙
General Purpose Traffic Operations	⊙	⊙		⊙		⊙	⊙
Transit Ridership and Bus Volumes	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Pedestrian Activity at Bus Zones	⊙	⊙	⊙				⊙
Surveys of CBD customers	⊙			⊙	⊙		⊙
TDM mitigation programs	⊙	⊙		⊙	⊙	⊙	⊙

In June 2007 - just prior to the re-opening of the tunnel - the M&M Committee will issue Volume 6, the sixth installment of this report. The final report, Volume 7, will be issued in January 2008. The release date of the final report has been moved one month later, to provide enough time to process the last formal customer survey, which will be conducted following the re-opening of the tunnel in September 2007. Following the issuance of Volume 7, the monitoring system established by the M&M process will remain in effect through at least September 2008. The data will be available to support additional reports if circumstances dictate they are needed.

Executive Summary on Post Tunnel Closure Conditions through December 2006

Volume 5 of this Report summarizes the post tunnel closure experience in the Seattle Central Business District through December 2006.

The balance of this report provides more detail on each of the evaluation programs that compose the fourth reporting period post tunnel closure. Key highlights from each of the four monitoring programs included in this report are as follows:

Transit Travel Time & Reliability

The first level of analysis for downtown transit travel time is a composite measurement of average time spent in the study area. This value is obtained by identifying the first and last observation of a bus trip in the CBD, regardless of the corridor. Averaging this figure for all trips results in a single value of time spent in the CBD for all observed trips. This value is used as an index, not a measure. This figure includes layover time as well as through-routed trips under one measurement. It will also include many different paths through the CBD with different lengths and travel conditions. The measure becomes meaningful when compared to the same measurement for future conditions to compare the ease of travel for transit through the CBD.

The data used for this reporting period was collected from October 2, 2006 to November 21, 2006. The Travel Time index for this reporting period is **90**, based on an average travel time of 19:46. The baseline Travel Time Index is **100**, representing the value before tunnel closure. The average travel time value at that time was determined to be 21:59, based on bus trips between 4 - 6 pm on weekdays during the month of July, 2005. The current index represents a **10%** decrease in time spent in the downtown core over the pre-tunnel closure baseline, but a **16%** increase over the previous two post-tunnel closure reports, likely due to seasonal impacts. The index from the same period in 2005, immediately after tunnel closure, was **111** so the current measurement still represents a significant improvement from the previous fall measurement. Travel time variability is still consistently good and also much improved over the same period in 2005.

At the corridor level, travel time comparisons were made using baseline data collected before tunnel closure and the three set of post tunnel data available through Volumes 2, Volume 3, Volume 4 and now Volume 5. The results are summarized below:

- Travel time on First Avenue has improved in the southbound direction by 2 to 3 minutes but has gotten 1 minute slower in the northbound direction when compared with the previous report. Overall schedule reliability as measured by the standard deviation is largely unchanged by time of day or direction of travel.
- The average travel time on Second Avenue increased slightly - by about 22 seconds in the morning peak and by about 56 seconds in the evening peak - from the previous report but with no effective change in variation. Travel times and schedule reliability are still better than for baseline conditions.
- For Third Avenue, average travel times improved by about one minute in the southbound direction for both the morning and afternoon peak and in the northbound direction in the peak, when compared to the previous report. Northbound travel in the AM peak was about one minute slower. Trip variation was comparable for both directions for both peak periods. Travel continues to be better in both directions than before tunnel closure.
- For Fourth Avenue S, average travel times increased by about 1 minute during both the morning and afternoon peak. Schedule variation increased slightly in the afternoon.

Travel on Virginia, Olive, and Howell are largely unchanged from the results reported in Volume 4. Stewart is slower by about 1 minute in the PM peak. However, Olive and Stewart still operate better than before tunnel closure. Morning peak on Howell remains slower than before tunnel closure.

In summary, bus travel on surface streets are still generally improved over pre-tunnel closure conditions, but riders of the routes that previously operated in the tunnel continue to experience longer trip times.

Transit Ridership and Bus Volumes

Approximately 95,000 north-south riders crossed the downtown screenline at University Street on weekdays in fall 2004 prior to tunnel closure. As part of a general increase in ridership, this number increased to almost 106,700 weekday riders in spring 2005. Preliminary data from fall 2006 indicate similar loads of 106,200 crossing University Street. However, looking at data from all of the applicable screenlines at the edge of the CBD, loads entering the CBD have increased from 88,000 riders in spring 2005 to 100,300 riders in fall 2006. Similarly, loads leaving the CBD have increased from 90,800 riders to 100,300 riders for the same period.

The bus volumes on surface streets in the Seattle Central Business District have not changed significantly from those reported in Volume 4. They continued to reflect the routing adjustments made post tunnel closure to address operation problems on Stewart Street.

Customer Surveys

King County Metro, acting on behalf of the M&M Committee contracted with the Gilmore Research Group to evaluate the behavior of bus riders and auto drivers before, during, and after tunnel closure. A baseline study of downtown Seattle users was conducted in August 2005, the month before the tunnel closed. The follow-up survey was conducted between June 28 and September 20, 2006 and represents the first formal survey to be conducted since tunnel closure.

Summary conclusions drawn from a comparison of these two surveys are as follows:

- While downtown Seattle users have noticed some changes in how smoothly traffic flows in, through, and out of downtown Seattle, the impacts of the tunnel closure appear to be fairly minimal.
- Several of the elements tested in the survey show slight declines when compared with 2005 results, but most of the differences are not statistically significant. For the most part respondents have remained positive about their overall experiences in downtown Seattle, demonstrating the resiliency of the population to deal with construction impacts in order to effect transportation improvements.
- Bus riders express a lower degree of satisfaction with the amount of personal space at downtown bus stops, but are no more dissatisfied with downtown crowding or personal security when walking around downtown than they were before the tunnel closed.
- The average number of trips to downtown Seattle across all groups and purposes held steady at about 19 per month for 2005 and 2006.
- Bus riders are more satisfied with the elements of bus travel than drivers and carpoolers are with the elements of traveling by car.
- The cost and availability of downtown parking continue to be troublesome for car travelers, but satisfaction with these elements did not change significantly following the tunnel closure.

One final survey of downtown users will be conducted after the tunnel reopens in 2007.

Transportation Demand Management Program

The package of Transportation Demand Management (TDM) programs introduced in support of tunnel closure has successfully expanded participation for these commute options. The results from tunnel closure through November 2006 can be summarized as follows:

- Over 546 Puget Pass holders have signed up for the Home Free Guarantee (HFG) for Individuals program.
- Registration activity at Rideshare Online has increased to more than 1,286 registrations by downtown employees since the Downtown Seattle Transit Tunnel closure.
- There has been a 15% increase in the number of companies that offer telecommuting options since April 2005.
- 22,440 free ride tickets have been distributed as part of the “Plan Your Commute” program and 48% of these tickets have been redeemed.
- The number of merchants participating in the Shop, Dine & Ride program increased to 136.
- Over 150 businesses and 6,700 individuals have joined FlexCar.
- Between June and November, 2006, 663 additional FlexPasses were issued bringing the total to 10,922 since this program was initiated in August 2005.